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cc: Tom

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State of Utah

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Executive Secretary

March 30, 2009

Sarah M. Fields
Uranium Watch
P.O. Box 344
Moab, UT 84532

Subject: Division of Water Quality Responses to Your Written Comments Regarding Proposed
Ground Water Discharge Permit UGW370007 for the Energy Queen Uranium Mine

Dear Ms. Fields:

The Division of Water Quality (DWQ) received your comments via email on March 16, 2009 regarding proposed Ground Water Discharge Permit UGW370007 for the Energy Fuels Resources Corporation (EFRC) Energy Queen Uranium Mine. We appreciate your concerns and would like to address the comments in your letter. Your comments are indicated in italics below and are followed by our response.

GENERAL COMMENTS

1. The community in the vicinity of the Energy Queen Mine was not adequately notified of the proposed Ground Water Discharge Permit (GWDP). A notice was published in the San Juan Record, but most of the people in La Sal work and/or shop in Moab, in Grand County. The proposed GWDP should have also been noticed in the Moab Times-Independent and more of an effort should have been made to inform the citizens of La Sal of this proposed GWDP. The application and draft permit and Statement of Basis were not made publicly available on the Division of Water Quality (DWQ) website until February 25 or 26.

Again, I request that the comment period be extended. It is my understanding that there will be a public hearing on the GWDP. The comment period should be held open through the date of that hearing.

DWQ Response: We disagree that the community in the vicinity of the Energy Queen Mine was not adequately notified of the proposed Ground Water Discharge Permit. In accordance with UAC R317-6-6.5 of the Administrative Rules for Ground Water Quality Protection, the Executive Secretary published a public notice in the San Juan Record, a newspaper in the affected area, and allowed 30 days for interested persons to comment. The San Juan Record identifies itself as the hometown newspaper for San Juan County where the Energy Queen Mine and the community of La Sal are located. In addition to its March 11th publication in the San Juan Record, the public notice was posted in the La Sal Post Office, where all residents of La Sal must go to get their mail. Therefore, the community of La Sal was adequately notified of the proposed Ground Water Discharge Permit.

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DIV. OF OIL, GAS & MINING

As stated in the public notice: "Additional information may be obtained upon request by calling Keith Eagan at (801) 538-6146 or by writing the aforementioned address. Related documents are available for review during normal business hours (Mon-Thurs 7 AM to 6 PM, closed Friday) at the Division of Water Quality, 288 North 1460 West, Salt Lake City." Although the permit and statement of basis were not posted on the DWQ website at the same time as the public notice, these documents were posted at the very first request Mr. Eagan received on February 25th. Similarly, the permit application was promptly posted on the DWQ website on the same day of the public request.

As stated in the public notice, "A public hearing may be held if written requests are received within the first 15 days of this public comment period that demonstrate significant public interest and substantive issues exist to warrant holding a hearing." We received written comments from four individuals during the latter part of the 30-day public comment period: one on February 26th, two on March 11th, and your email on March 16, 2009. Based on the number of responders and the content of the comments, the Executive Secretary decided that a public hearing was not warranted. However, an open house will be held in La Sal on April 6th at 6:30 P.M. in the La Sal Community Center with representatives from DWQ, the Division of Oil, Gas and Mining, and EFRC available to answer questions about the proposed ground water discharge permit and the mining operation.

GENERAL COMMENTS

2. The DWQ and the Applicant should address the cumulative impacts to the ground water from the past mining operations.

DWQ Response: Background ground water quality and interim protection levels in the draft permit will be re-evaluated after EFRC submits the Background Ground Water Monitoring Report, which is required by Compliance Schedule item I.H.1 of the permit. At that time, the Executive Secretary will evaluate the report to resolve background ground water quality and the permit may be re-opened to modify ground water protection levels.

GENERAL COMMENTS

3. The DWQ must acknowledge that the operation of the Energy Queen Mine will result in continued radiological and non-radiological contamination of the ground water on and off the mine site. The site is in the midst of the community of La Sal. The issuance of this permit is not in the interest of the community of La Sal and should be rejected.

DWQ Response: The purpose of the Ground Water Discharge Permit is to protect ground water beneficial uses by applying best available technology (BAT) for new facilities and discharge minimization technology (DMT) for existing facilities to minimize discharge of pollutants from the mine dewatering operation, and to verify the effectiveness of the BAT and DMT by ground water quality compliance monitoring. Under UAC R317-6-1.3 of the Administrative Rules for Ground Water Quality Protection, "Best Available Technology means the application of design, equipment, work practice, operation standard or combination thereof at a facility to effect the maximum reduction of a pollutant achievable by available processes and methods taking into account energy, public health, environmental and economic impacts and other costs." The Untreated Water Pond is designed as a no-discharge facility that will be constructed with two 60-mil high density polyethylene (HDPE) synthetic liners with a leak detection layer between them, and a leak collection system to contain any leakage through the primary (upper) HDPE liner. If any water leaks through the primary (upper) HDPE liner, the leakage will be routed by the secondary (lower) HDPE liner to a leak collection sump, where it will be pumped back into the pond. The following BAT performance Standards will be enforced to verify the effectiveness of the liner system:

- Minimum Vertical Freeboard - At least 24 inches of vertical freeboard (the distance between the top of the pond liner and the pond water level) will be maintained to ensure total containment of untreated mine water.
- Maximum Allowable Leakage Rate - Utah has adopted an allowable leakage rate of 200 gallons per acre per day established by EPA's Action Leakage Rates for Leak Detection Systems (EPA, January 1992). Based on a one-acre pond area, the maximum allowable leakage rate through the primary (upper) HDPE liner is 200 gallons/day. All fluids collected in the leak detection sump will be pumped back into the pond, hence a no-discharge pond.
- Maximum Allowable Head - The maximum allowable head (water column) in the leak detection collection sump will be one (1) foot. All fluids collected in the leak detection sump shall be pumped back into the pond so that the maximum fluid level within the sump remains below one (1) foot.

The water treatment plant will be constructed on a concrete pad with a concrete curb to contain any leaks or spills. The concrete filter pad will also be curbed and sloped so that all fluids draining from the geosynthetic filter bags will discharge directly into the pond. Water treatment operators will check and record reagent levels daily and refill the tanks on a regular schedule. An automatic shutoff will be installed on each reagent tank to shut off the water feed pump if reagent levels drop below 5% of the tank volume. The BAT Performance Monitoring Plan will ensure that the facility is operated in accordance with design specifications and will also ensure that any early indications of facility problems will be detected early and resolved.

Potential impacts to ground water have been minimized by employing best available technology for the Untreated Water Pond, Treatment Plant, and Filter Pad, and discharge minimization technology for the Contingency Pond. DWQ will provide periodic onsite inspections during construction and operation of the facilities described above. In addition to BAT performance monitoring, ground water quality monitoring will be conducted to determine if ground water quality has been impacted by the ponds. Ground water quality compliance for the Untreated Water Pond will be accomplished using primary compliance monitoring wells HMW-1, HMW-2, HMW-3, HMW-4, and HMW-5 and well-specific ground water protection levels established in accordance with UAC R317-6-4. If primary compliance monitoring wells indicate an exceedance of ground water protection levels, compliance status will be determined by following the accelerated sampling and source assessment procedures in Part I.F. of the permit. Secondary compliance monitoring wells MW-1, MW-2, MW-3, and MW-4 will be utilized when Out-of-Compliance Status has been determined for any of the primary compliance wells in accordance with Part I.F.2 of the permit. The permit will require quarterly compliance monitoring reports be submitted to DWQ with the results of BAT performance monitoring and ground water quality compliance monitoring. These monitoring requirements are explained in the permit Statement of Basis. The permit will require quarterly compliance monitoring reports be submitted to DWQ with the results of BAT performance monitoring and ground water quality compliance monitoring. These monitoring requirements are explained in the permit Statement of Basis.

DWQ does not regulate land use. Land use is regulated by counties and/or cities, which have planning and zoning boards that can determine what land uses can be approved and developed. For information about land use regulation, please contact the San Juan County Planner at (435) 587-3225 or at the San Juan County web page at the following internet address: <http://www.sanjuancounty.org/index.htm>.

The mine is located in the La Sal Mining District on private property held by a surface lease with Markle Ranch Holding, LLC and a mineral lease with Superior Uranium Inc. for a 20-year term, which can be extended. The area was leased from the 1970s through 1997 by the Hecla Mining Company and Umetco Minerals Corporation. Drilling in the late 1970s discovered large uranium and vanadium deposits, which were developed by vertical shafts (Beaver Shaft and Hecla Shaft). Development drifting and minor production were in progress through 1980. Exploration drilling indicates 1.65 million pounds of uranium (U_3O_8) and 1.8 million pounds of vanadium (V_2O_5). The mine was started in 1979 and operated until 1983 when production ceased due to inadequate uranium prices. The mine was in standby mode until 1993 waiting for uranium prices to improve.

GENERAL COMMENTS

4. *The DWQ and the Applicant have completely failed to address the impacts of the ground water discharge operations on the wildlife in the area. The open ponds will attract birds, bats, and insects. Small mammals in the area, such as prairie dogs, are likely to come into contact with the ponds and the radiological contaminants on- and off-site. Plants will take up radioactive constituents from the ground water and the air. Animals eat plants and/or other animals and may ingest unacceptable amounts of radiological and non-radiological contaminants from those plants or animals. Animals will breathe particulates that are released from the ponds. The DWQ must assess, consider, and mitigate the cumulative impacts to the wildlife from the operation of the ground water discharge system at the Mine.*

5. *The DWQ and Applicant must assess and consider the most recent biological evaluations of listed species and biological analyses of threatened, endangered, management indicator, and sensitive species for which occupied habitat or suitable unoccupied habitat exists within the area affected by the Mine's ground water discharge control operation. Eagles frequent the area, and their presence must be taken into consideration.*

6. *The DWQ and the Applicant have completely failed to address the impacts of the ground water discharge operations on the domestic animals in La Sal. Cattle roam the area, often cannot be excluded by fences, and will drink from contaminated water sources. Cattle eat vegetation that may contain unacceptable levels of radiological and non-radiological contaminants. The DWQ must assess, consider, and mitigate the cumulative impacts to domestic animals from the operation of the ground water discharge system at the Mine.*

DWQ Response: The purpose of the Ground Water Discharge Permit is to protect ground water beneficial uses by applying best available technology (BAT) for new facilities and discharge minimization technology (DMT) for existing facilities to minimize discharge of pollutants from the mine dewatering operation, and to verify the effectiveness of the BAT and DMT by ground water quality compliance monitoring. The Division of Oil, Gas and Mining (DOGM) in the Department of Natural Resources and its sister agency, the Division of Wildlife Resources, may have some viable options for trying to prevent bats and birds from flying in and drinking the pond water. Please contact Paul Baker, Minerals Program Manager in DOGM at (801) 538-5261 for more information. According to the application, the pond will be enclosed with 6-foot high chain link fencing to prevent access by domestic animals such as cattle and wildlife such as deer, and elk.

GENERAL COMMENTS

7. *It appears that the Applicant will be permitted to establish background constituent levels based on contamination levels from past mine operations. Rather than cleaning up past ground water contamination, it will just be compounded by the proposed Energy Queen Mine operations. This is unacceptable.*

DWQ Response: Background ground water quality and interim protection levels in the draft permit will be re-evaluated after the EFRC submits the Background Ground Water Monitoring Report, which is required by Compliance Schedule item I.H.1 of the permit. At that point, the Executive Secretary will evaluate the report to resolve background ground water quality and the permit may be re-opened to modify ground water protection levels.

APPLICATION AND SUPPORTING DOCUMENTS

1. Ore and Waste Rock: The Application (p. 2) states that ore will be temporarily stockpiled at the mine and that waste rock will be stockpiled on site.

Comment: The Application does not indicate how much ore will be stockpiled or for how long. There is no information about the radiological and chemical content of the waste rock that will be and has been disposed of on-site. Normally, waste rock from mining operations contain radionuclides and chemical constituents that can be mobilized and will contaminate ground and surface water. Historically, both uranium ore piles and waste rock have contributed to extensive ground water and surface water contamination. The radionuclides and chemical constituents can be mobilized due to precipitation and due to the dispersion of particulates into the air that subsequently fall to the ground. The soil in the vicinity of the ore piles and waste rock piles becomes contaminated and later contributes to ground water contamination over time.

The Application should have provided information regarding the potential contamination to the Ground Water from future and past ore piles and waste rock piles. The DWQ should also understand how the ground water monitoring program for the site would be able to identify and quantify ground water contamination from those areas. At this time, there appear to be no monitoring wells near a large waste rock area.

DWQ Response: Mining operations and reclamation requirements are regulated by the Utah Division of Oil, Gas and Mining (DOGM). Under Rule R647-4 of the Utah Administrative Code, DOGM requires the mining company to submit for approval a Notice of Intention to Commence Large Mining Operations containing all the required information including:

- A topographic map showing property boundaries of surface ownership of all lands which are to be affected by the mining operations.
- Known areas which have been previously impacted by mining or exploration activities within the proposed disturbed area.
- Proposed surface facilities, including but not limited to buildings, stationary mining/processing equipment, roads, utilities, power lines, proposed drainage control structures, and, the location of topsoil storage areas, tailings or processed waste facilities, disposal areas for overburden, solid and liquid wastes and wastewater discharge treatment and containment facilities.
- A border clearly outlining the acreage proposed to be disturbed by mining operations.
- Plans, profiles and cross sections of roads, pads or other earthen structures to be left as part of the post-mining land use.
- Maps identifying surface areas which will be disturbed by the operator but will not be reclaimed, such as solid rock slopes, cuts, roads, or sites of buildings or surface facilities to be left as part of the post-mining land use.

- Baseline information maps and drawings including soils, vegetation, watershed(s), geologic formations and structure, contour and other such maps which may be required for determination of existing conditions, operations, reclamation and post-mining land use.
- A reclamation activities and treatment map to identify the location and the extent of the reclamation work to be accomplished by the operator upon cessation of mining operations. This drawing shall be utilized to determine adequate bonding and reclamation practices for the site.

In addition, DOGM requires the submittal and approval of a Reclamation Plan and Reclamation Surety prior to the commencement of operations. For more information about mining operations, reclamation, and bonding, please contact Paul Baker, DOGM Minerals Program Manager at (801) 538-5261.

APPLICATION AND SUPPORTING DOCUMENTS

2. *Corrective Action Plan: The Application (p. 8) states that "for existing facilities that have already violated Ground Water Quality Standards, this plan should include: a characterization of contaminated ground water; facility remediation proposed or ongoing including timetable for work completion; ground water remediation."*

Comment: The Application does not specifically discuss whether the Energy Queen has already violated Ground Water Quality Standards and would be required to have a remediation plan in place to correct those violations. Information in Section 8.2.2 of the Application states that uranium concentrations in wells HMW-1, HMW-2, and MW-4 "typically exceed Utah's groundwater and drinking water standard for uranium." Apparently, the Applicant and the DWQ intend that the Ground Water Quality Standards that have been violated will not be addressed, and an operation will be permitted that will continue to contaminate both the soil and ground water at the site for decades to come. Additionally, there is no data regarding the past contamination of the ground water both on- and off-site. Some of the wells in the area have not been sampled and there is nothing that substantiates an assumption that those wells would provide a reliable indication of whether or not the shallow or deeper aquifers in the vicinity of the site have been contaminated by past mining activities. The Applicant and the DWQ must address the remediation of current contamination of the ground water on and off the site.

DWQ Response: Background ground water quality and interim protection levels in the draft permit will be re-evaluated after EFRC submits the Background Ground Water Monitoring Report, which is required by Compliance Schedule item I.H.1 of the permit. At that time, the Executive Secretary will evaluate the report to resolve background ground water quality and the permit may be re-opened to modify ground water protection levels.

APPLICATION AND SUPPORTING DOCUMENTS

3. *Water Quality: Section 8.2.2 address water quality (p. 12-13). This section discusses the monitoring wells on-site and water wells off-site.*

Comment 1: The Application does not contain any information that demonstrates that the existing monitoring wells are sufficient to determine whether the ground water at the Mine is being contaminated. It is possible that there are preferential pathways of ground water that would transport contaminated ground water both vertically and horizontally and not be discovered by the existing well configuration.

DWQ Response: The Untreated Water Pond is designed as a no-discharge facility and the leak detection system is the primary point of compliance. As long as the BAT performance standards are being met, the Permittee is compliant with the permit. Ground water compliance wells HMW-1, HMW-2, HMW-3, HMW-4, and HMW-5 will serve as a back-up monitoring system for the Untreated Water Pond leak detection system, and a primary point of compliance for the Contingency Pond, if it is ever used.

APPLICATION AND SUPPORTING DOCUMENTS

3. *Water Quality: Section 8.2.2 address water quality (p. 12-13). This section discusses the monitoring wells on-site and water wells off-site.*

Comment 2: The DWQ should not issue the GWDP until the Helca Mine Well and the Planksville Well have been sampled. The background characteristics of these wells must be established.

DWQ Response: The Hecla Mine water well is currently inactive. The well is screened from 105 to 194 feet below ground surface and was not constructed as a monitoring well. The Planksville water well, which is owned by Denison Mines Corp., is screened from 280 feet to 320 feet below ground surface and was not constructed as a monitoring well. DWQ will request that EFRC rehabilitate the Hecla Mine well and seek permission from Denison Mines Corp. to sample the Planksville well, if it is operational.

APPLICATION AND SUPPORTING DOCUMENTS

4. *Ground Water Discharge Control Plan: Section 9 (p. 15-16) discusses various aspects of the discharge control at the site.*

Comment 1: Section 9.1 states that the Energy Queen mine will be operated as a "no discharge" facility. That is not exactly correct, since the Mine will discharge an average of 144,000 gallons of treated water per day into what is described as a "dry wash."

Comment 2: There is no map in the Application that shows precisely where the water from the Water Treatment Plant will be discharged and where the water will flow after it is discharged. This information is probably included in the UPDES permit, but that permit is not readily available. A map of the drainage that will be impacted by the discharge should have been included in the Application.

DWQ Response: The Untreated Water Pond, not the mine, will be operated as a no-discharge facility. DWQ will request that the application be revised to reflect this correction. Discharge of the treated mine water was approved under a separate Utah Pollutant Discharge Elimination System (UPDES) permit UT0025712, which was issued on April 1, 2008. The 30-day public comment period for UPDES Permit UT0025712 opened on February 5, 2008 with the publication of the public notice in the San Juan Record. The public comment period closed on March 7, 2008. No comments were received and the permit was issued on April 1, 2008. Please contact Matt Garn of the UPDES Section at (801) 538-9489 for information on UPDES Permit UT0025712.

APPLICATION AND SUPPORTING DOCUMENTS

5. *Precipitate Analyses and Testing. Section 10.5 (p. 19) discusses the disposal of collection bags made out of geomembrane fabric. These bags will eventually be disposed of. The Applicant states that the possible disposal options are: "on-site disposal in accordance with the mine and reclamation plan, shipment to a mill for uranium recovery, or off-site disposal at an appropriate landfill."*

Comment: The Applicant should be required to specifically identify under what circumstances it is appropriate to dispose of the bags at any of the types of facilities mentioned. The Applicant should identify the specific off-site facilities. The Applicant should explain the specific statutes or regulations that allow for the recovery of uranium from the bags at the uranium recovery facility and any licensing requirements that must be complied with. It should identify the "appropriate" landfills that may be used, the disposal requirements for those landfills, and how the Applicant will comply with those requirements. The DWQ should not automatically assume that the bags could be legally disposed of at the facilities referenced by the Applicant. More information is needed to assure proper disposal.

APPLICATION AND SUPPORTING DOCUMENTS

6. *Closure and Post Closure Plan: Section 11 (p. 20-21) discusses the plans for facility decommissioning.*

Comment 1: The Applicant should not be permitted to dispose of radioactive material on site. The geomembrane from the ponds should not be disposed of at a municipal landfill. It should be disposed of off-site at an appropriate licensed facility.

Comment 2: The Applicant should not be permitted to dispose of chemical precipitate at the site. The site is not designed for long-term storage and containment of radioactive and chemically contaminated materials. Eventually, any buried material would be exposed and possibly dragged off. The Applicant must provide information that supports the assumption that they would be able to ship the chemical precipitate to a uranium mill for processing. The Applicant should identify the type of "suitable landfill" that would be able to receive and dispose of chemical precipitates.

Comment 3: There is no mention in the plan of any clean up of contaminated areas or any radiological cleanup standards that must be complied with in order to assure that continued contamination of ground water from past and future waste rock piles, ore pads, contaminated soils and other sources will not take place.

Comment 4: There is no discussion of where the suspended solids from the Untreated Water Pond will be disposed of during the operation of the Mine and during closure. The Applicant should have described a plan for the proper disposal of the suspended solids, with specificity and particularity, over the life of the Mine.

DWQ Response: The comments above pertain to reclamation activities, which are regulated by the Utah Division of Oil, Gas and Mining (DOGM). Section 10.5 of the ground water permit application states that the appropriate disposal method for solids and precipitates will be based on analytical results of radium-226, uranium, and toxicity characteristic leaching procedure (TCLP) results for RCRA metals. If necessary, DOGM can get assistance from the Division of Solid and Hazardous Waste and the Division of Radiation Control to determine the appropriate disposal method for the solids and precipitates during reclamation activities. For information about mine reclamation requirements, please contact Paul Baker, DOGM Minerals Program Manager at (801) 538-5261.

APPLICATION AND SUPPORTING DOCUMENTS

7. Contingency Pond: Section 12.5 (p. 24) describes an existing pond that will be converted to the Contingency Pond to receive untreated water from the Untreated Water Pond or the Water Treatment Plant when necessary. This pond has a single liner.

Comment 1: Information should have been provided about how that pond was constructed and the current condition of the liner. The Application mentions repairs to the liner, but there is little information about how that will be carried out. There is no mention of a Quality Assurance program to assure the integrity of the liner system prior to use.

DWQ Response: The Contingency Pond is an existing facility that was constructed in 1992 by Umetco Minerals Corporation, former owner of the mine. The pond was constructed with a sand bedding, overlain by a geotextile layer and a high density polyethylene (HDPE) flexible membrane liner. As an existing facility, the Contingency Pond is required to employ discharge minimization technology not BAT. The plans and specifications for the inspection and repair of the Contingency Pond are included in a submittal titled "Construction Specifications, Energy Queen Mine" (August 2008), which was approved with the issuance of the Construction Permit on September 15, 2008. This document and the September 15, 2008 Construction Permit were referenced under Permit Application Documents in the Statement of Basis.

APPLICATION AND SUPPORTING DOCUMENTS

7. Contingency Pond: Section 12.5 (p. 24) describes an existing pond that will be converted to the Contingency Pond to receive untreated water from the Untreated Water Pond or the Water Treatment Plant when necessary. This pond has a single liner.

Comment 2: Since the pond has already been used, the past leakage into the soil and groundwater from this and any other pond that was used in the past should be assessed.

DWQ Response: Background ground water quality and interim protection levels in the draft permit will be re-evaluated after EFRC submits the Background Ground Water Monitoring Report, which is required by Compliance Schedule item I.H.1 of the permit. At that time, the Executive Secretary will evaluate the report to resolve background ground water quality and the permit may be re-opened to modify ground water protection levels.

APPLICATION AND SUPPORTING DOCUMENTS

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Comment 3: The applications states: "Seepage rates from the Contingency Pond were calculated using this relationship which assumes excellent contact between the synthetic HOPE [sic] and the underlying soil under field conditions." The Application should provide information regarding the contact between the synthetic liner and underlying soil. There does not seem to be a basis for the assumption that the contact is excellent, pretty good, poor, or bad.

DWQ Response: The Contingency Pond is an existing facility that was constructed in 1992 by Umetco Minerals Corporation, former owner of the mine. The pond was constructed with a sand bedding, overlain by a geotextile layer and a high density polyethylene (HDPE) flexible membrane liner. As an existing facility, the Contingency Pond is required to employ discharge minimization technology not BAT. The plans and specifications for the inspection and repair of the Contingency Pond are included in the submittal titled "Construction Specifications, Energy Queen Mine" (August 2008), which was approved with the issuance of the Construction Permit on September 15, 2008. This document and the September 15, 2008 Construction Permit were referenced under Permit Application Documents in the Statement of Basis.

GROUND WATER DISCHARGE PERMIT

1. Connection Between Local Water Well and Mine.

Comment: The GWDP does not take into consideration the possible connection between the Hecla Shaft and a local well. The Executive Summary (p. 2) submitted to the Division of Oil, Gas, and Mining by Union Carbide Corporation, apparently in 1979, states: A groundwater pillation [sic] problem was investigated in the past that may have been caused by Union Carbide's drilling. Soap and oil were reported in the well water of a local resident. The problem no longer exists. This statement indicates that there is possibly a direct connection between the Energy Queen Mine and at least one local well.

DWQ Response: Shallow ground water at the mine flows west-northwest toward the Colorado River and its tributaries. Except for the Hecla Mine well, there are no downgradient water wells within two miles of the mine. Private water wells in the area are typically screened near the base of the Dakota/Burro Canyon Formation, which is located at a depth of 220 feet at the mine. The Salt Wash Member of the Morrison Formation is the ore unit that is being dewatered and is located at a depth of 670 feet. Intermingling of ground water from the Dakota/Burro Canyon aquifer and the Salt Wash Member will be prevented by two mechanisms, one man-made and one naturally-occurring. The man-made mechanism is the concrete casing that has been installed in the mine shaft to provide a seal for preventing cross-communication with other aquifers. This concrete casing may develop minor cracks that could allow some of the shallower Dakota/Burro Canyon groundwater to flow into the mine. However, Energy Fuels would grout any cracks encountered to minimize inflows and potential drawdown of the shallow aquifer.

The naturally-occurring mechanism for preventing ground water cross-communication is the 450-foot thick Brushy Basin Member aquitard, which is present between the Dakota/Burro Canyon aquifer and the Salt Wash Member. The Brushy Basin Member is composed of 368 feet of mudstones interbedded with thin and discontinuous sandstone lenses. The bentonitic content and very low permeability of the Brushy Basin mudstones makes the Brushy Basin aquitard an effective natural barrier for preventing cross-communication between the Dakota/Burro Canyon aquifer and the Salt Wash Member.

The reference to the apparent contamination of a local water well by Union Carbide drilling in 1979 can not be directly linked to the Energy Queen Mine, but is most likely related to the historic uranium exploration drilling that was done in the 1960s and 1970s. Hundreds of exploration borings were drilled in the area during the 1960s and 1970s and left open, as State plugging and abandonment rules were not yet in place to require sealing of drill holes. EFRC will seal off any such holes as they are encountered using packers. New exploration holes drilled by EFRC and other mining companies in the area are plugged and abandoned in accordance with current State regulations that require grout or bentonite seals.

GROUND WATER DISCHARGE PERMIT

2. Ground Water Classification (Section I.A.)

Comment 1: The Permit makes no mention of the ground water classification of the offsite area down-gradient of the Mine site and within and along the dry wash that will receive thousands of gallons of water per day, making it no longer a dry wash. The Discharge permit should provide information on the classification of all ground water that will be or could be impacted by the mine water treatment and discharge system. That water should be characterized to provide background data and information. Without such background data on off-site ground water, seeps, washes, and nearby wells, there is no way to determine how, over time, the operation of the Mine has impacted the ground water off-site.

Comment 2: Additionally, there does not appear to be any ground water monitoring wells or site background characterization in the vicinity of the mine waste dump west of the mine water treatment facility area. The Applicant should be required to monitor all areas of the Mine site that has the potential to contribute to ground water contamination on- and off-site.

DWQ Response: The subject Ground Water Discharge Permit is for the mine water storage and treatment system, which includes the Untreated Water Pond, the Contingency Pond, the Treatment Plant, and the Filter Pad. Although this system will be a no-discharge facility under normal operating conditions, ground water quality monitoring for this system will be conducted with monitoring wells HMW-1, HMW-2, HMW-3, HMW-4, and HMW-5 and well-specific ground water protection levels established in accordance with UAC R317-6-4. Downgradient compliance monitoring wells MW-1, MW-2, MW-3, and MW-4 will be utilized when Out-of-Compliance Status has been determined for any of the primary compliance wells.

GROUND WATER DISCHARGE PERMIT

3. Background Water Quality (Section I.B.)

Comment 1: The GWDP should not be issued until the completion of the accelerated background-monitoring program is completed.

DWQ Response: It is a common practice to issue a Ground Water Discharge Permit with a background ground water sampling program as a compliance schedule item based on the requirement for at least eight samples over a two-year period, the very slow movement of ground water through the porous media of aquifers, and seasonal and temporal variations in water quality. Examples of permits with a background monitoring programs as a compliance item include the Shootaring Canyon Uranium Mill near Ticaboo and the White Mesa Uranium Mill near Blanding.

GROUND WATER DISCHARGE PERMIT

3. Background Water Quality (Section I.B.)

Comment 2: Additional, off-site background water quality levels should be established.

DWQ Response: Figure A.2 of the permit application shows water wells within a one-mile radius of the mine. Background ground water quality data were collected by EFRC in 2007 for the Shipler and Webb water wells. We will request that the applicant seek permission to collect background water quality samples for the Planksville well, and the Stewart well and to include these data in an addendum to the Background Monitoring Program.

GROUND WATER DISCHARGE PERMIT

4. BAT Construction Standards, Contingency Pond (Section I.D.1.c.). The GWDP allows the Applicant to make use of an old pond. The BAT is not based on the best design for the Contingency Pond, but on the design of the pond that is already there. No as-built plans or quality assurance documentation for the pond were submitted by the Applicant.

Comment 1: The Contingency Pond should be reconstructed to the same standard as the Untreated Water Pond. Much of the time the Contingency Pond will not contain water. Therefore, much of the time it will be exposed to the elements, such as sun and wind, and this will lead to a more rapid degradation of the existing liner. Further, as often happens, the estimated amount and time that the Contingency Pond will need to hold water may be greatly exceeded. There does not appear to be any reasonable justification for not requiring a new, double-lined pond, except the cost to the Applicant.

Comment 2: The estimated leakage rate of 63 gallons-per-day from the Contingency Pond (when it has water) is, at best, a guess. Based on that assumption, if water is in the pond for 3-4 months a year that would amount to approximately 5,670 to 7,560 gallons of untreated water leaking into the ground each year the Mine operates, adding to the contamination of the soil and water at the site. The Mine should not be allowed to release any amount of contaminated water into the soil at the site. Therefore, a double lined system and a leak detection and collection system should be required for the Contingency Pond.

DWQ Response: The Contingency Pond is an existing facility that was constructed in 1992 by Umetco Minerals Corporation, former owner of the mine. The pond was constructed with a sand bedding, overlain by a geotextile layer and a 40-mil high density polyethylene (HDPE) flexible membrane liner. As an existing facility, the Contingency Pond is required to employ discharge minimization technology not BAT. The plans and specifications for the inspection and repair of the Contingency Pond are included in the submittal titled "Construction Specifications, Energy Queen Mine" (August 2008), which was approved with the issuance of the Construction Permit on September 15, 2008. This document and the September 15, 2008 Construction Permit were referenced in the Permit Application Documents section in the Statement of Basis. By design, HDPE liners are specifically formulated and manufactured to resist ultra-violet rays. Therefore, they are suitable for use in exposed applications. The liners are expected to last many decades in exposed applications without any detrimental effect from sunlight.

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5. Compliance Monitoring Requirements, Source Water Monitoring Requirements (E.2.)

Comment 1: The Applicant should be required to sample and analyze the mine water discharged to the Untreated Water Pond on more than a quarterly basis, particularly at the beginning of operations.

DWQ Response: A quarterly sampling frequency is adequate to characterize the water quality of the untreated water over time. In comparison, Ground Water Discharge Permit UGW450005 for the Energy Solutions low-activity radioactive waste and mixed waste evaporation ponds only requires a semi-annual sampling frequency for source water monitoring.

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5. Compliance Monitoring Requirements, Source Water Monitoring Requirements (E.2.)

Comment 2: The Applicant should be required to determine the releases to the atmosphere of radionuclides and chemical constituents from the ponds and the impacts of those releases to wildlife, domestic animals, vegetation, and the health and well being of the workers and the community.

DWQ Response: DWQ does not regulate mine worker health and safety, radiation exposure, or air monitoring. However, EFRC has indicated that the following protective measures would be implemented to proactively prevent risks to human health that may be caused by the mining operation.

- The mine would operate in accordance with federal regulations that are designed to protect the mine workers and the general public from radiation exposure.
- The miners would be protected through establishment of adequate ventilation and monitoring of radiation levels in the underground work areas in accordance with Mine Safety and Health Administration (MSHA) regulations.
- The general public would be protected by monitoring of radiation emissions from the mine using methods approved by the U.S. Environmental Protection Agency (EPA) and adhering to ore transportation regulations established by the U.S. Department of Transportation.
- The air emissions would be measured for radon levels and flow rates in accordance with EPA regulations. These data would then be input into an EPA air modeling program to predict radiation levels at the nearest residence.
- Ore haul trucks would be tarped and checked for radiation levels prior to leaving the mine site and the mill site on the return leg. If gamma readings are found to be elevated, the ore truck would be cleaned using a power wash or other method to meet appropriate radiation standards.
- All scrap metal and other recyclables would be checked with a gamma meter prior to leaving the mine site. If the gamma readings are found to be elevated, the material would be cleaned using a power wash or other method to meet appropriate radiation standards.

I hope I have adequately addressed your concerns related to the proposed Ground Water Discharge Permit. If you have any additional questions, please contact me at rherbert@utah.gov or (801) 538-6038.

Sincerely,



Rob Herbert, P.G., Manager
Ground Water Protection Section

Cc: Paul Baker, DOGM Minerals Program
Matt Garn, DWQ UPDES Section